

## ASSESSMENT OF THE EFFECT OF ANULOM VILOM PRANAYAMA AS AN ADJUVANT THERAPY IN ASTHMA PATIENTS

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### ABSTRACT

**Background:** Healthy ways of life and breathing activities help in the improvement of personal satisfaction and quality of life. Breathing activities incorporates an alternate nostril breathing (ANB) which comprises of moderate, profound and calm breaths utilizing each nostrils in turn. The valuable impact of such exercise may change with populace, span and seriousness of dyspnea. **Material & Methods:** The present prospective study was conducted at department of respiratory medicine of our tertiary care hospital. We enrolled 50 study participants from outdoor and from ward by simple random sampling, who were presented with signs and symptoms of bronchial asthma for more than 6 months. Clearance from Institutional Ethics Committee was taken before start of study. Written informed consent was taken from each study participant. **Results:** In the present study, the pretest score and post test score on the basis of Modified borg dyspnea scale of total study participants was recorded. On the basis of the Modified borg dyspnea scale the median vale of pretest score was 4.6 and median vale of post test score was 3.4. Z score was 3.24 and this difference was statistically significant (P-value < 0.05). The pretest score and post test score levels of dyspnea using FEV1 score of total study participants was recorded. On the basis of the levels of dyspnea using FEV1 score the mean vale of pretest score was  $58.10 \pm 13.51$  and median vale of post-test score was  $66.92 \pm 17.84$ . T score was 4.87 and this difference was statistically significant (P-value < 0.05). **Conclusion:** We concluded from the present study that four weeks of anulom vilom pranayama was seen as a compelling therapy in diminishing the degree of dyspnea and advisable for prevention of acute severe asthma.

**Keywords:** Asthma, Pranayama, Borg dyspnea score.

### INTRODUCTION

The prevalence of asthma is varying from different geographical distribution, some studies conducted on its prevalence and they found prevalence of asthma ranging from 1% to 18% among population of various countries (1). Asthma is reported in previous studies as most distributed diseases around the world with an approximate burden of 300 million patient (2). Acute severe asthma is reported as one of the most common emergency condition which results in hospitalization (3). In previous studies, it was reported that severity grade of asthma was divided among mild, moderate and severe. According to

various reports acute attack of asthma is very common medical emergency which is result in high morbidity and mortality (4). In a study it was reported that acute attack of asthma accounts for high rates of hospital emergency admissions and hospitalizations in ICU per year (5). In Indian scenario a previous study reported that acute attack of asthma had increase in incidence compared to previous decades (6).

The etiopathogenesis of asthma is reported as a chronic inflammatory disease which involve the lower respiratory tracts of the lungs. Along with

inflammation there is episodic airflow obstruction also persists and it accounts for morbidity reported among children (7). Healthy ways of life and breathing activities help in the improvement of personal satisfaction and quality of life. Breathing activities incorporates an alternate nostril breathing (ANB) which comprises of moderate, profound and calm breaths utilizing each nostrils in turn. The valuable impact of such exercise may change with populace, span and seriousness of dyspnea. Thus, this investigation was meant to assess the effect of anulom vilom pranayama as an adjuvant therapy to improve the level of dyspnea in chronic asthma patients.

## MATERIALS & METHODS

The present prospective study was conducted at department of respiratory medicine of our tertiary care hospital. The study duration was of six months. A sample size of 50 was calculated at 95% confidence interval at 10% acceptable margin of error by epi info software version 7.2. Patients were enrolled from outdoor and from ward by simple random sampling. Clearance from Institutional Ethics Committee was taken before start of study. Written informed consent was taken from each study participant.

The data were collected by detailed history of acute exacerbation of asthma, treatment history, general physical and clinical examination from each patient after taking the written consent. All the enrolled study participants were subjected to routine lab investigations including CBC, eosinophil count, chest X ray, arterial blood gas analysis and electrolytes. Anulom Vilom Pranayama was educated by the examiner. The patient was approached to sit straight, shut the right-side nostril with the right-side thumb and breathed in gradually through the other nostril for 2 seconds. After this, shut the left nostril with ring finger, expelled the thumb from the right-side nostril and breathed out for 4 seconds. Once more, breathed in through the right side nostril and rehashed the system. The training was done twice day by day for 5 minutes. They were told to rehearse it day by day for 10 minutes for about a month. Instructor kept in touch and educated them to keep up a journal with respect

to the rehearsing time. The study participants were returned after a month to the outpatient department for audit. Pre and post-test were directed utilizing modified Borg dyspnea scale. The dyspnea scale has ratings from 0 (none) to 10 (serious) on which study participants are solicited to rate their ratings of dyspnea subsequent to doing six-minute walk test. Spirometer was utilized to survey FEV1 in the first second. Data analysis was carried out using SPSS v22. All tests were done at alpha (level significance) of 5%; means a significant association present if p value was less than 0.05.

## RESULTS

In present study, we enrolled 50 study participants from outdoor and from ward by simple random sampling, who were presented with signs and symptoms of bronchial asthma for more than 6 months. The age of study participants was ranged from 18 years to years. The mean age of study participants was 43.2 years. Majority of the study participants 26 %were belonging the age group of 18-30 years which was followed by 24% study participants in more than 60 years age group which was followed by 22% study participants in the age group of 30-40 years followed by 18% study participants in the age group of 50-60 years and 10% study participants were in age group of 40-50 years of age. (Table 1)

**Table 1: Distribution of study subjects according to the age.**

Age group	Number of subjects (%)
18-30 years	13 (26%)
30-40 years	11 (22%)
40-50 years	5 (10%)
50-60 years	9 (18%)
>60 years	12 (24%)
<b>Total</b>	<b>50 (100%)</b>

In the present study, out of total study participants it was reported that females were likely affected more than males in the ratio of 2.12: 1. Family history of asthma was found positive in 66% study participants. Raised absolute eosinophil counts (>400 cells/ $\mu$ L) were reported in 74% of study participants. (Table 2)

**Table 2: Gender wise distribution of study subjects**

Gender	Number of subjects (%)
Female	34 (68%)
Male	16 (32%)
Total	50 (100%)

In the present study, the pretest score of FEV1 levels of total study participants was recorded. On the basis of the pretest score of FEV1 levels all study participants were divided in five groups respectively, mild, moderate, moderately severe, severe and very severe. Out of the total, 10 (20%) patients were mild, 8 (16%) patients were moderate, 13 (26%) patients were moderately severe, 16 (32%) patients were severe and 3 (6%) patients were very severe. (Table 3)

**Table 3: Distribution of subjects according to pretest score of FEV1 score.**

FEV1	Frequency (%)
Very severe	3 (6%)
Severe	16 (32%)
Moderately severe	13 (26%)
Moderate	8 (16%)
Mild	10 (20%)

In the present study, the pretest score and post test score on the basis of Modified borg dyspnea scale of total study participants was recorded. On the basis of the Modified borg dyspnea scale the median vale of pretest score was 4.6 and median vale of post test score was 3.4. Z score was 3.24 and this difference was statistically significant (P value < 0.05). (Table 4)

**Table 4: Comparison of Pre and post test scores of levels of dyspnea.**

Modified borg dyspnea scale	Z score	P value
Median	3.24	<0.05
Pre test	4.6	
Post test	3.4	

In the present study, the pretest score and post test score levels of dyspnea using FEV1 score of total study participants was recorded. On the basis of the levels of dyspnea using FEV1 score the mean vale of

pretest score was  $58.10 \pm 13.51$  and median vale of post test score was  $66.92 \pm 17.84$ . T score was 4.87 and this difference was statistically significant (P value < 0.05). (Table 5)

**Table 5: Comparison of Pre and post test scores of levels of dyspnea using FEV1 score.**

FEV1 score	T score	P value
Mean	4.87	<0.05
Pre test	$58.10 \pm 13.51$	
Post test	$66.92 \pm 17.84$	

## DISCUSSION

In present study, we enrolled 50 study participants from outdoor and from ward by simple random sampling, who were presented with signs and symptoms of bronchial asthma for more than 6 months. The age of study participants was ranged from 18 years to years. The mean age of study participants was 43.2 years. Majority of the study participants 26 %were belonging the age group of 18-30 years which was followed by 24% study participants in more than 60 years age group which was followed by 22% study participants in the age group of 30-40 years followed by 18% study participants in the age group of 50-60 years and 10% study participants were in age group of 40-50 years of age. Similar results were obtained in a study conducted by Jose JM et al among 20 patients suffering from bronchial asthma, they included age group 20 to 64 years and found similar results to present study (8).

In the present study, out of total study participants it was reported that females were likely affected more than males in the ratio of 2.12: 1. Family history of asthma was found positive in 66% study participants. Raised absolute eosinophil counts (>400 cells/ $\mu$ L) were reported in 74% of study participants. In the present study, the pretest score of FEV1 levels of total study participants was recorded. On the basis of the pretest score of FEV1 levels all study participants were divided in five groups respectively, mild, moderate, moderately severe, severe and very severe. Out of the total, 10 (20%) patients were mild, 8 (16%) patients were moderate,

13 (26%) patients were moderately severe, 16 (32%) patients were severe and 3 (6%) patients were very severe. Similar results were obtained in a study conducted by T Aggarwal et al among 50 patients suffering from bronchial asthma, they found on looking at study and control gathering, FVC, FEV1, FVC/FEV1, PEFr are improved in both the investigation and control gathering, following one month of pranayama however improved in study group, not in control bunch after second and third month of pranayama (9).

In the present study, the pretest score and post test score on the basis of Modified borg dyspnea scale of total study participants was recorded. On the basis of the Modified borg dyspnea scale the median vale of pretest score was 4.6 and median vale of post test score was 3.4. Z score was 3.24 and this difference was statistically significant (P value < 0.05). Similar results were obtained in a study conducted by Jose JM et al among 20 patients suffering from bronchial asthma, they included age group 20 to 64 years and found There was a noteworthy (p = 0.0001) decrease in dyspnea in the wake of rehearsing Anulom Vilom Pranayama for one month. The middle of Borg dyspnea scale in the pre-test was 4.5 and that of post-test was 3.5. The mean FEV1 score in the pre-test was 57.20 and that of post-test was 68.75 which was seen as factually huge (p=0.0001).(8)

In the present study, the pretest score and post test score levels of dyspnea using FEV1 score of total study participants was recorded. On the basis of the levels of dyspnea using FEV1 score the mean vale of pretest score was  $58.10 \pm 13.51$  and median vale of post test score was  $66.92 \pm 17.84$ . T score was 4.87 and this difference was statistically significant (P value < 0.05). Similar results were obtained in a study conducted by T Aggarwal et al among 50 patients suffering from bronchial asthma. The cases were told via prepared yoga educator to perform anoloma-viloma and kapalbhati pranayama routinely for 3 months and then unique lung work boundary FVC, FEV1,FEV1/FVC,PEFR was retreated before and after pranayama and perception were concentrated by applying understudy t-test and assessed measurably.found on looking at study and control gathering, FVC, FEV1, FVC/FEV1, PEFr

are improved in both the investigation and control gathering, following one month of pranayama (9).

## CONCLUSION

We concluded from the present study that four weeks of anulom vilom pranayama was seen as a compelling therapy in diminishing the degree of dyspnea. Little study size and brief length of activity were the primary confinements of this investigation. Subsequently, a multicenter concentrate in different populace with increment time of anulom vilom pranayama is justified to generalization of study results.

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